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DIALOG(R)File 351:Derwent WPI

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007110283

WPI Acc No: 1987-110280/198716

Related WPI Acc No: 1987-110281; 1987-110282; 1987-110283; 1987-144745;
1987-171610

XRPX Acc No: N87-082981

Movable member mounting for optical beam deflector - has pair of
electrically conductive paths formed by doping or metallising portions of
assembly

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Number of Countries: 017 Number of Patents: 034

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
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Priority Applications (No Type Date): GB 8525458 A 19851016; GB 8525459 A
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92505; US 4466696

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 219356 A E 7
 Designated States (National): JP US
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 Designated States (National): JP US
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 Designated States (National): JP US
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 Designated States (National): JP US
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 Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE
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 CA 1333452 C G01J-003/26

Abstract (Basic): EP 219356 A

The assembly has two supports and a movable member mounted by respective connecting members between the supports. The electrical conductivity of the assembly is such that one electrically conductive path extends from a support to the movable member and thereafter to the other support. The resistivity of the path is such that the passage of a working current along the path causes thermal expansion of one or more of the connecting members and the movable member thus causing movement of the movable member relatively to the supports.

The movable member is mounted to each support by a pair of connecting members. All the connecting members are electrically conductive, e.g. for diffraction grating or laser cavity mirror.

Abstract (Equivalent): EP 219356 B

An assembly of at least two supports (1, 2) and a movable member (3) mounted by respective connecting members (4, 5, 6, 7) between the supports (1, 2) the electrical conductivity of the assembly being such that at least one electrically conductive path (8 or 9) extends from a support (1 or 2) to the movable member (3) and thereafter to the (1) or another (2) support, the resistivity of the path (8 or 9) being such that the passage of a working current

Abstract (Equivalent): US 4896936 A

The component such as a laser chip is secured to the lower side of a bridge-shaped support. At least one of the support and the substrate includes the locator for locating the support in at least one direction relatively to the substrate. The support and component is secured to a substrate with the component located between the support and the substrate.

The locator locates the support in two directions relatively to the substrate. The support and the substrate have complementary locating positions constituting the locator. The locating portions comprise complementary V-shaped ridges and V-shaped recesses.

USE - Accurate mounting of small components to a substrate.

US 4871244 A

The movable member mounting uses bridges (4-7) between a pair of supports (1,2). The support (1,2) bridges and mirror (3) are integrally formed from a silicon substrate. A pair of electrically conductive

paths (8,9) are formed by doping or metallising portions of the assembly so that by passing controlled currents through the paths, thermal expansion of parts of the paths will cause deflection of the mirror (3).

The assembly is particularly useful for deflecting optical beams.

USE - Optical mirror.

US 4867532 A

The device comprises a single crystal silicon substrate (1) having a square recess (2) in which a central upstanding ridge (3) integrally formed with the base is provided. On either side of the ridge are mounted respective electrode plates (4,5). A torsion plate (6) is integrally formed with the support ridge and has a pair of torsion bars (7,8) and a central square portion (9) carrying a diffraction grating. A deflectable wavelength selection member is constituted by the diffraction grating. The electrode are responsive to a control current to cause the torsion member to deflect whereby radiation centred on a predetermined wavelength is selected from radiation having a number of wavelengths impinging on the selection member by setting the selection member at a predetermined angle to the incoming radiation.

USE - Laser chip external cavity, optical communications source for direct detection or coherent systems.

US 4854658 A

The radiation deflector assembly, primarily for deflecting optical radiation, includes there waveguides mounted in V-shaped grooves (2, 3, 4) of a substrate (1) which are coplanar. A cantilevered beam integral with the substrate (1) is positioned in a cavity (5) of the substrate such that when the beam (6) is in a first position radiation passes between optical waveguides in two of the grooves (2, 3) and when the beam is in a second position optical radiation passes between optical waveguides in another two of the grooves (2, 4).

Control electrodes (8, 9) are responsive to control signals to generate a suitable electrostatic field for moving the beam (6) between the two positions.

USE - For optical switch array.

US 4846930 A

The method of mounting a component e.g. a laser chip, on a substrate, comprises a step of mounting the component on an undersurface of a bridge-shaped support. The support is positioned on substrate with the component located between the support and the substrate. At least one of the support and substrate is located in at least one direction relatively to the substrate. The support is secured substrate.

Prior to the positioning step, the locator is provided by forming locating portions in the support and the substrate.

US 4825262 A

The Fabry-Perot interferometer comprises a single crystal silicon substrate (1) with an integrally formed diaphragm (6) supported between walls (2-5). A glass superstrata (14) is mounted adjacent the substrate (1) with a spacer (13) sandwiched therebetween.

Facing surfaces (12,16) of the diaphragm (6) and superstrata (14) are polished and suitably coated to define reflective surfaces and the position of the diaphragms may be altered to vary the response of the interferometer.

ADVANTAGE - Enhanced accuracy.

US 4802727 A

A method of positioning an optical component such as a laser diode (36) in alignment with an optical waveguide (30) comprises forming an elongate V-shaped groove (29) and a depression (31) in a substrate (28). A laser diode is then mounted in the depression (31) and is accurately located there.

An optical fibre (30) is mounted in the groove (29). The relative

positions of the depression and the waveguide are such that in use an optical beam may be coupled between the optical component and the waveguide.

ADVANTAGE - Enables optical component to be mounted in same substrate as other optical devices.

Title Terms: MOVE; MEMBER; MOUNT; OPTICAL; BEAM; DEFLECT; PAIR; ELECTRIC; CONDUCTING; PATH; FORMING; DOPE; METALLISE; PORTION; ASSEMBLE

Derwent Class: P78; P81; V07; V08

International Patent Class (Main): G01J-003/26

International Patent Class (Additional): B44C-001/22; G01B-009/02;

G02B-002/08; G02B-006/38; G02B-026/02; G02B-026/04; G02B-027/44;

G02F-001/21; H01L-021/30; H01L-023/02; H01S-003/10

File Segment: EPI; EngPI

Manual Codes (EPI/S-X): V07-K04; V07-K05; V08-A01A; V08-A03